Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

[redacted]

US OFFICIALS ONLY

CENTRAL INTELLIGENCE AGENCY

INTELLIGENCE MEMORANDUM NO. 357
(CIA/RR IM-357)

STRATEGIC VALUE OF CONSTRUCTION AND ROAD-BUILDING MACHINERY TO THE SOVIET ORBIT

21 June 1951

W A R N I N G

This document contains information affecting the national defense of the United States within the meaning of Title 18, Sections 793 and 794 of the U.S. Code, as amended. Its transmission or revelation of its contents to or receipt by an unauthorized person is prohibited by law.

The material in this report, which contains information available to CIA as of 1 June 1951, was originally prepared in fulfillment of a Munitions Board request for the evaluation of certain items currently on the export control lists. The report has not been coordinated with the intelligence organizations of the Departments of State, the Army, the Navy, and the Air Force.

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

[redacted]

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

SECRET

US OFFICIALS ONLY

STRATEGIC VALUE OF CONSTRUCTION AND ROAD-BUILDING MACHINERY TO THE SOVIET ORBIT [1]

1. General.

The procurement of construction and road-building machinery from non-Orbit sources is of considerable strategic value to the Soviet Orbit because of the present inability of the Orbit to meet its needs for such machinery. The Soviet Union has scheduled an ambitious program for the construction of dams, hydroelectric plants, irrigation canals, and other facilities that require large quantities and many varieties of construction equipment. Adequate quantities of Soviet-manufactured equipment could not be supplied for these projects without diverting strategic materials and plant capacity from the production of other highly strategic equipment. The supply of equipment from the West thus would help the Soviet Orbit to carry out construction projects directly increasing its war potential. Moreover, the Soviet Orbit lacks working models of some types of large-capacity and specialized equipment and cannot manufacture these types without further experimentation on technology and design. Imports of such equipment from the US, therefore, provide the Orbit with prototypes of advanced design and technology.

On the other hand, the denial of Western construction and road-building machinery to the Orbit would prolong the present deficiencies in the Soviet supply and would severely limit the potential of the Soviet armed forces for rapid construction of military installations, strategic roads, and airstrips. An embargo also would delay any significant improvement in the inadequate road network, making it more difficult for the USSR to reduce the burden on the railroads in case of war, and would hinder the construction of large dams, irrigation canals, and hydroelectric projects important to the expansion of Soviet industry.

Present construction plans include the building of hydroelectric plants at Kakhovka, Stalingrad, and Kuibyshev that will have a total estimated output of over 21 billion kilowatt-hours, producing power for such strategic industries as the chemical and nonferrous metals industries and for the railroads. The Kuibyshev and Stalingrad projects are scheduled to be completed within the next 5 years, but Soviet experts estimate that specially powerful and perfected machinery will be needed and that work will have to proceed

1. The types of machines that are particularly under discussion are on US List I-A, item A512, excavators, power shovels, and cranes; item A513a, road and airport machinery, bituminous pavers, and pneumatic-tired soil compactors; and contractors' off-the-road trucks, wagons, and trailers (the latter recommended for US embargo).

SECRET

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

24 hours per day during the entire 5 years in order to finish on time. On the Kakhovka project, 20 million cubic meters of excavating and 1,800,000 cubic meters of concrete pouring will be required according to Soviet officials, while on the Kuibyshev and Stalingrad projects at least 4 million cubic meters of excavation work will have to be done, 800,000 cubic meters of cement and reinforced concrete poured, and more than 150,000 tons of various steel structures erected. The Orbit's present rate of production of construction machinery is inadequate to meet these requirements.

Another project, the 1,100-kilometer Turkmenian Canal, will be of particular importance in the development of cotton growing in Central Asia and in transportation. The Turkmenian Canal and the water impounded by the dams serving the hydroelectric projects will form part of a series of deep reservoirs and inland waterways through which strategic products such as Baku oil and Donets Basin coal can be shipped to Moscow and other industrial areas.

Large hydroelectric projects already under construction, other than those previously mentioned as planned or just being started, are considerably behind schedule because of poor organization and lack of adequate mechanical equipment. Some of the machinery intended for use on such projects is still in the planning or experimental stage. During most of the recent Five Year Plan period, prisoner-of-war labor has been used for road construction, but many have now been repatriated, thus greatly reducing available labor for unskilled jobs.[1] It is doubtful whether the USSR can continue to use excessive amounts of manpower as a substitute for large-scale mechanical equipment.

The USSR also needs large-scale construction machinery in order to continue development of the strip-mining process for the production of iron ore, copper, coal, and bauxite.

Road, airport, and airstrip construction and repair likewise create demands for construction and road-building machinery. In the past year the Soviets have increasingly emphasized the construction of roads, bridges, airports, and airstrips, particularly in locations that might be useful for military purposes. For example, roads and bridges in Bulgaria, Rumania, Hungary, Czechoslovakia, and East Germany are being strengthened to accommodate heavy traffic and large vehicles such as heavy tanks. These projects have high priorities and strict deadlines.

Large-capacity earth-moving equipment is essential for some Orbit road-building projects because of the need for digging very deeply in order to establish satisfactory road foundations on unstable soil. Such difficult conditions are encountered in the Ukraine, the Volga River Valley, and Eastern Poland, where some very strategic highway construction has been

1. This repatriation of PW's cannot be taken as an indication that labor is plentiful in the Soviet Orbit. It seems quite likely that the repatriation took place for security reasons.

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

planned. Present supplies of road-building equipment, however, are not adequate, and the Orbit countries are making every effort to import various types of road-building and excavating machinery from every possible source.

There also is a shortage of spare parts for machinery in the Soviet Orbit. In Czechoslovakia, for example, replacement parts are not available for construction and road-building machines purchased since World War II from US Army surpluses and from the UK. It is difficult for Czechoslovakia to supply those parts from its own manufactures, because almost all spare parts produced by the Skoda works must be shipped to the USSR. There is a similar shortage of spare parts in the USSR, and this hampers the Soviet construction program. The Department of State reports that "much of the currently increasing domestic output (of construction and road-building equipment) will be offset by a high retirement rate of foreign-made units as the result of a lack of spare parts, improper maintenance, and excessive use."

The purchase from non-Orbit sources of machines not previously manufactured in the Orbit is particularly advantageous to the USSR. Such machines include specialized types and sizes needed only in small quantities, and advanced types requiring new technology. If these machines can be imported, Soviet productive capacity may then be used to manufacture a few types and sizes needed in large quantities, thus enabling the plants to operate at a higher efficiency and increased capacity without losing time in reconverting periodically to manufacture equipment for which full-time production is not required.

2. Exports from the West to the Soviet Bloc.

The US shipped large quantities of excavators and cranes to the USSR during World War II and in 1946-47, and the Western European countries have been exporting construction and road-building machinery to the Soviet Orbit in sufficient quantities to assist substantially in the USSR's current construction programs. About 500 excavators were supplied to the USSR by the UK, Belgium, and Luxembourg in 1948-50. In the first 6 months of 1950, about $2,300,000 worth of construction and road-building machinery were exported to the Soviet Bloc from France, the UK, Italy, and Sweden, including shipments from Italy to the USSR of cranes embargoed by the US valued at $1,024,000 and excavators and other digging and levelling machinery from the UK to the USSR worth $755,000. If complete export data for all Western countries were available for the first half of 1950, the total would considerably exceed $2,300,000. The Orbit countries have been trying to buy machinery wherever possible. For example, in July 1950 a Soviet Commercial Attaché proposed to [redacted] that he buy eight asphalt plants in the US and have them exported to Lebanon, Iraq, and Iran for transshipment to the USSR.

25X1X6

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

3. Manufacture and Supply of Construction and Road-Building Machinery in the Satellites.

Although Czechoslovakia manufactures small excavators and some construction and road-building machinery, it is suffering from a serious shortage of the latter, and there probably are shortages also in the other Satellite countries. One reason is that the USSR has removed millions of dollars worth of machinery and equipment from the Satellites in the past and reportedly is taking all of the current production of heavy machinery of the Skoda works in Czechoslovakia. Poland and Rumania probably manufacture and export small quantities of such machinery to the USSR. Bulgaria, China, and Albania manufacture little and export none. Road-building and construction machinery is also probably available to the USSR from the Soviet Zone of Austria and from East Germany, either items manufactured in those areas or imported illegally from the Western-occupied Zones.

4. Manufacture of Excavators, Power Shovels, and Cranes in the USSR.

There is a critical shortage of large-capacity excavators, power shovels, and cranes. By far the greatest proportion of excavators and power shovels manufactured in the USSR have capacities of 0.5 to 2.5 cubic meters and are too small for use on large construction projects. For projects such as the Danube-Black Sea Canal, excavators, power shovels, and drag lines with capacities of from 4 cubit meters to 8 or 10 cubic meters are more efficient. The USSR makes only a few excavators and power shovels with capacities up to 4 cubic meters, useful in large earth-moving construction projects. A 15-cubic-meter shovel is reportedly in production at the Novo-Krematorsk plant, although no proof of this is available. A 14-cubic-meter "walking" excavator is believed to be in production at the Uralmash plant, and there have been unconfirmed reports of designs for larger excavators of similar types. In September 1950 the Soviet Minister of the Construction and Road-Building Machinery Industry said that new types of large-capacity excavators were being designed, and that high-capacity grader-elevators were being manufactured and will be used in construction of the Stalingrad and Kuibyshev hydroelectric stations. He also said that powerful bulldozers will be used for leveling sites, that high-speed excavators will dig trenches for supporting pillars, that powerful cranes will be used in building the hydroelectric stations, and that irrigation excavators will be used in the construction of canals. These high-capacity machines are probably not in production at the present time, and it seems unlikely that they can be produced in sufficient quantities for the grandiose construction projects that have been planned.

The manufacture of cranes in the USSR appears to be even less adequate than that of excavators. It is improbable that the USSR is making full-revolving cranes with swinging booms of the capacities needed in large

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

construction projects, including cranes of 30-ton and larger capacity that are under US embargo.[1] By far the largest proportion of the mobile or track-mounted cranes manufactured in the USSR are of the 3-ton capacity used in highway bridge construction, ship unloading, and projects of similar size. However, the USSR is also making cranes of from 5-ton to 15-ton sizes, useful in heavy industrial construction, gun emplacements, etc. Three known makes of Russian cranes are the UBK-3-49, the UBK-5-49, and the UBK-15-49, which have weight-lifting capacities of 3, 5, and 15 tons, respectively. The SKB-1, which has a jib-boom attachment, is also manufactured in the USSR. It is used in the construction of high buildings and may be useful on some of the larger construction projects. However, present production does not include the range of types and capacities needed.

5. Manufacture of Concrete Mixers, Scrapers, Pavers, Spreaders, Graders, and Other Road and Airport Construction Machinery in the USSR.

The USSR manufactures small concrete mixers which are not usable on large construction projects, but no evidence has been received of production of larger sizes. Soviet publications boast of planned production of large-capacity mixers, high-capacity concrete pumps, special belt conveyors, and other equipment for large-scale loading, unloading, and pouring of concrete. As of September 1950, however, the Soviet Minister of the Construction and Road-Building Machinery Industry spoke of such production only in future terms.

Little is known about the present status of production of other types of road-building and construction machinery in the USSR. A Soviet official characterized the road-building equipment on hand in early 1950 as inadequate both in quantity and in quality. Whether self-propelled graders, which are on the US embargo list, are being produced is not known, but tractor-propelled graders are manufactured. Similarly, self-loading scrapers, also embargoed by the US, are probably not being manufactured, although several varieties of scrapers and three experimental models of high-capacity scrapers have been built. Soviet officials have said that high-capacity grader-elevators manufactured by Soviet plants will be used in the construction of the Stalingrad and Kuibyshev hydroelectric stations and that high-capacity self-propelled hydro-monitors and self-propelled dredging pumps are being designed for use on these projects. No information is available to indicate the extent to which production has been started on such machines, and it seems probable that most of the specialized and high-capacity machines are still in the designing stage.

1. Capacity means maximum-rated weight-lifting capacity, or the load that can be safely and effectively raised at the minimum operating radius.

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8

6. Contractors' Off-the-Road Trucks, Wagons, and Trailers.

The total number of usable large-capacity trucks is probably small, because postwar production did not get underway until 1948-49 and the vehicles made in the USSR before the war and obtained under Lend-Lease are old. Current imports and current production probably do not furnish the quantity of heavy trucks needed in the large construction projects. (The USSR has a large supply of small trucks that are important for military operations.) The use of trailers in construction work depends on the availability of specially designed trailer trucks, production of which is apparently not far advanced in the USSR. No recent information is available, however, regarding progress in the production of off-the-road equipment for construction work.

Approved For Release 1999/09/21 : CIA-RDP79T00935A000200040001-8